# JEDEC STANDARD

# Assessment of Average Outgoing Quality Levels in Parts Per Million (PPM)

## JESD16B

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# ASSESSMENT OF AVERAGE OUTGOING QUALITY LEVELS IN PARTS PER MILLION (PPM)

## Introduction

Improvements in manufacturing technology and methodology have resulted in corresponding quality improvements for electronic devices. As a result, the traditional measure for reporting average quality levels in percent nonconforming needs to be replaced with a quantity more in line with the quality levels of today. That measure is parts-per-million or ppm. It is simply clearer to report estimated average device quality as 10 ppm, rather than the more cumbersome 0.001%. The ppm terminology applies to estimating the average outgoing quality (AOQ) level of a device, from lot acceptance results.

This standard was developed to provide a uniform method of measurement and calculation of average outgoing quality levels. Minimum sample sizes and a method for aggregating data are provided.

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(From JEDEC Board Ballot JCB-17-18 formulated under the cognizance of JC-13 Committee on Government Liaison.)

## 1 Scope

This standard is intended to provide a uniform method of determining fraction nonconforming in finished devices and to provide a standardized definition of the quality index referred to as Average Outgoing Quality (AOQ). The method used here is primarily directed at devices whose production or procured volume is large enough, during some predefined sampling period, to give statistically meaningful information.

## 2 Application

This standard is intended to provide a method for the derivation and reporting of fraction non-conforming. The AOQ philosophy applies to the estimation of the average quality level of a product, not to lot acceptance plans. Since it is necessary to focus on accumulated lots to generate sufficient data for device quality characterization, the method in this standard should not be used to establish ppm levels for individual lots or to form the basis for determining acceptability of product on a lot-by-lot or batch-by-batch basis.

## 3 Reference publications

Publications referenced by this document are listed in Annex D.

## 4 Terms and definitions

For the purpose of this standard the following terms and definitions shall be used:

**acceptance inspection:** A sampling inspection or series of sampling inspections used to determine the suitability of a lot of material for shipment.

NOTE The accumulation of acceptance inspection data is used to determine average outgoing quality (AOQ).

**accept number (c):** The maximum number of nonconforming devices in the sample for which acceptance of the lot is allowed under the sampling plan.

**average outgoing quality (AOQ):** The expected population average nonconforming, in parts per million, estimated from a series of lots.